

## EAST Search History

| Ref # | Hits | Search Query  | DBs  | Default Operator | Plurals | Time Stamp       |
|-------|------|---|--|------------------|---------|------------------|
| L1    | 1    | ("6611599").PN.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2007/03/27 14:54 |
| S1    | 2329 | ((713/176) or (713/181)).CCLS.  | US-PGPUB; USPAT                                    | OR               | OFF     | 2006/11/04 14:13 |
| S2    | 25   | S1 and (vector with orthogonal)   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2006/11/04 14:15 |
| S3    | 1    | ("6611599").PN.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2006/11/04 14:15 |
| S4    | 6    | ("6611599").URPN.   | USPAT  | OR               | ON      | 2006/11/04 14:16 |
| S5    | 15   | ("4405829"   "4939515"   "5499294"   "5530751"   "5530759"   "5568570"   "5606609"   "5613004"   "5664018"   "5765176"   "5778070"   "5809139"   "5825892"   "5848155"   "5949885").PN. | US-PGPUB; USPAT; USOCR                             | OR               | ON      | 2006/11/04 14:34 |
| S6    | 1    | ("20040068649").PN.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2007/03/26 13:03 |
| S7    | 1    | ("20040034781").PN.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2007/03/26 13:04 |
| S8    | 1    | ("6611599").PN.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2007/03/26 13:13 |
| S9    | 320  | (380/203).CCLS.   | US-PGPUB; USPAT                                    | OR               | OFF     | 2007/03/26 13:38 |
| S10   | 2    | watermark\$2.ab. and (message adj digest) same (sign\$3 signature) same orthogonal  | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2007/03/26 13:39 |
| S11   | 8    | watermark\$2.ab. and (message adj digest) same (sign\$3 signature) and orthogonal   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2007/03/26 13:39 |
| S12   | 54   | watermark\$2.ab. and (message adj digest hash) same (sign\$3 signature) and orthogonal  | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2007/03/26 13:54 |

## EAST Search History

|     |     |   |   |    |     |                  |
|-----|-----|---|---|----|-----|------------------|
| S13 | 906 | (message adj digest hash) same<br>(sign\$3 signature) and orthogonal                  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/03/26 13:54 |
| S14 | 598 | (message adj digest hash) same<br>(sign\$3 signature) and orthogonal<br>and watermark | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/03/26 13:55 |
| S15 | 267 | (message adj digest hash) same<br>(sign\$3 signature) and orthogonal<br>and watermark | USPAT   | OR | ON  | 2007/03/26 14:03 |
| S16 | 3   | (watermark same reverse adj<br>discrete adj cosine adj transform)                     | USPAT   | OR | ON  | 2007/03/26 14:02 |
| S17 | 3   | (watermark and reverse adj discrete<br>adj cosine adj transform)                      | USPAT   | OR | ON  | 2007/03/26 14:02 |
| S18 | 181 | (message adj digest hash) with<br>(sign\$3 signature) and orthogonal<br>and watermark | USPAT   | OR | ON  | 2007/03/26 15:26 |
| S19 | 80  | watermark same orthogonal   | USPAT   | OR | ON  | 2007/03/26 15:31 |
| S20 | 538 | watermark and orthogonal  | USPAT   | OR | ON  | 2007/03/26 15:32 |
| S21 | 538 | watermark and orthogonal  | USPAT   | OR | ON  | 2007/03/27 12:52 |
| S22 | 0   | watermark and orthogonal and<br>(@ad < "2000")  | USPAT   | OR | ON  | 2007/03/26 15:34 |
| S23 | 158 | watermark and orthogonal and<br>(@ad < "20000101")                                    | USPAT   | OR | ON  | 2007/03/26 15:35 |
| S24 | 60  | watermark and orthogonal and<br>(@ad < "19980101")                                    | USPAT   | OR | ON  | 2007/03/26 15:35 |
| S25 | 1   | ("5930369").PN.   | US-PGPUB;<br>USPAT  | OR | OFF | 2007/03/27 11:59 |
| S26 | 0   | watermark and orthogonalize with<br>vector  | USPAT   | OR | ON  | 2007/03/27 12:52 |
| S27 | 103 | watermark and orthogonal with<br>vector   | USPAT   | OR | ON  | 2007/03/27 14:54 |

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Terms used watermark hash encrypt

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Best 200 shown

Relevance scale **1 Digital multimedia book: From digital audiobook to secure digital multimedia-book** Lavinia Egidi, Marco FuriniJuly 2006 **Computers in Entertainment (CIE)**, Volume 4 Issue 3**Publisher:** ACM PressFull text available:  [pdf\(364.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Portable devices and wireless connections are creating a new scenario in which digital information is entering our lives in a massive way. In this article we consider MP3 audiobook applications and propose an approach to completely restyle the applications to the current mobile and multimedia scenario. Our mechanism introduces multimedia contents (images and text) into the audiobook application and synchronizes them with the MP3 audio stream. Multimedia contents are protected by a security system ...

**Keywords:** multimedia applications, multimedia communications, multimedia over wireless, music distribution

**2 A Public-Key Watermarking Technique for IP Designs**

Amr T. Abdel-Hamid, Sofiene Tahar, El Mostapha Aboulhamid

March 2005 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 1 DATE '05****Publisher:** IEEE Computer SocietyFull text available:  [pdf\(164.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Sharing IP blocks in today's competitive market poses significant high security risks. Creators and owners of IP designs want assurances that their content will not be illegally redistributed by consumers, and consumers want assurances that the content they buy is legitimate. Recently, digital watermarking emerged as a candidate solution for copyright protection of IP blocks. In this paper, we propose a new approach for watermarking IP designs based on the embedding of the ownership proof as part ...

**3 Poster 3: content track: Light weight MP3 watermarking method for mobile terminals** Koichi Takagi, Shigeyuki SakazawaNovember 2005 **Proceedings of the 13th annual ACM international conference on Multimedia MULTIMEDIA '05****Publisher:** ACM PressFull text available:  [pdf\(117.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper proposes an MP3 watermarking method that is applicable to a mobile terminal

with limited computational resources. Considering that the embedded information is copyright information and metadata, which should be extracted before playing back, the watermark detection process should be executed quickly. However, conventional methods cannot detect a digital watermark at high speed. Thus, this paper proposes that scalefactor values in MP3 data be altered so as not to spoil audio quality. E ...

**Keywords:** MP3, mobile terminal, scalefactor, watermarking

#### 4 Authentication and forensics: JPEG2000-based secure image authentication

 Mathias Schlauweg, Dima Pröfrock, Erika Müller  
September 2006 **Proceeding of the 8th workshop on Multimedia and security MM&Sec '06**

**Publisher:** ACM Press

Full text available:  pdf(677.66 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present an efficient JPEG2000-based image authentication scheme, which is robust to JPEG compression and other allowed signal processing operations. Positive wavelet-based watermarking approaches proposed in recent years are enhanced by image adaptive perceptual modeling and error correction coding. Our new method is secure in contrast to most of the schemes proposed so far. Lots of popular features of the JPEG2000 compression framework are supported, such as quality and resolution scalabilit ...

**Keywords:** ECC, JPEG2000, authentication, watermarking, wavelet domain

#### 5 Research contributions: A review of information security issues and respective research contributions

 Mikko T. Siponen, Harri Oinas-Kukkonen  
February 2007 **ACM SIGMIS Database**, Volume 38 Issue 1

**Publisher:** ACM Press

Full text available:  pdf(353.82 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper identifies four security issues (access to Information Systems, secure communication, security management, development of secure Information Systems), and examines the extent to which these security issues have been addressed by existing research efforts. Research contributions in relation to these four security issues are analyzed from three viewpoints: a meta-model for information systems, the research approaches used, and the reference disciplines used. Our survey reveals that most ...

**Keywords:** computer science

#### 6 Watermarking cyberspace

 Hal Berghel  
November 1997 **Communications of the ACM**, Volume 40 Issue 11

**Publisher:** ACM Press

Full text available:  pdf(1.70 MB) Additional Information: [full citation](#), [citations](#), [index terms](#)

#### 7 Publicly detectable techniques for the protection virtual components

 Gang Qu  
June 2001 **Proceedings of the 38th conference on Design automation DAC '01**

**Publisher:** ACM Press

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Full text available: [pdf\(131.89 KB\)](#)

[terms](#)

Highlighted with the newly released intellectual property (IP) protection white paper by VSI Alliance, the protection of virtual components (VCs) has received a large amount of attention recently. Digital signature is one of the most promising solutions among the known protection mechanisms. However, the trade-off between hard-to-attack and easy-to-detect and the lack of efficient detection schemes are the major obstacles for digital signatures to thrive. In this paper, we propose a new wat ...

**8 Watermarking: Dual watermarking for protection of rightful ownership and secure image authentication**

 Mathias Schlauweg, Dima Pröfrock, Benedikt Zeibich, Erika Müller  
October 2006 **Proceedings of the 4th ACM international workshop on Contents protection and security MCPS '06**

Publisher: ACM Press

Full text available: [pdf\(1.33 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A digital watermarking approach highly robust to lossy image compression is presented. It is shown how geometrically warping objects can be used to imperceptibly embed information into images for the purpose of property rights protection. Common lossy image compression is optimized for maintaining the geometric image structure. Hence, as we demonstrate, the embedded information is not affected by a successive embedding approach in the compression domain. This second watermarking scheme is used f ...

**Keywords:** JPEG2000, authentication, dual watermarking, error correction coding (ECC), normed centre of gravity (NCG)

**9 Security analysis II: Robustness and security of a wavelet-based CBIR hashing**

 algorithm  
Albert Meixner, Andreas Uhl  
September 2006 **Proceeding of the 8th workshop on Multimedia and security MM&Sec '06**

Publisher: ACM Press

Full text available: [pdf\(639.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A wavelet-based robust database hashing scheme is analyzed with respect to its resilience against image modifications and hostile attacks. A method to construct a forgery is presented and possible countermeasures are discussed.

**Keywords:** image retrieval, robust hash functions, security

**10 Watermarking: Watermarking schemes provably secure against copy and ambiguity attacks**

 André Adelsbach, Stefan Katzenbeisser, Helmut Veith  
October 2003 **Proceedings of the 3rd ACM workshop on Digital rights management DRM '03**

Publisher: ACM Press

Full text available: [pdf\(224.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Protocol attacks against watermarking schemes pose a threat to modern digital rights management systems; for example, a successful attack may allow to copy a watermark between two digital objects or to forge a valid watermark. Such attacks enable a traitor to hinder a dispute resolving process or accuse an innocent party of a copyright infringement. Secure DRM systems based on watermarks must therefore prevent such

protocol attacks. In this paper we introduce a formal framework that enables us to ...

**Keywords:** multimedia security, protocol attacks, watermarking

11 Benchmarking and attacks: A symbolic transform attack on lightweight encryption

 based on wavelet filter parameterization

Dominik Engel, Rade Kutil, Andreas Uhl

September 2006 **Proceeding of the 8th workshop on Multimedia and security MM&Sec '06**

**Publisher:** ACM Press

Full text available:  [pdf\(569.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a family of attacks on lightweight encryption schemes for visual data that rely on wavelet filter parameterizations to provide security. All of the attacks construct a symbolic representation of the inverse wavelet transform. We show that this representation can be used in ciphertext-only attacks, known-plaintext attacks and in attacks in which some information on the plaintext is available. We investigate the success and feasibility of each of these attacks, and conclude that the pre ...

**Keywords:** JPEG2000, attack, ciphertext-only, known-plaintext, secret frequency domain, secret parameterized wavelet filters

12 Protecting digital media content

 Nasir Memon, Ping Wah Wong

July 1998 **Communications of the ACM**, Volume 41 Issue 7

**Publisher:** ACM Press

Full text available:  [pdf\(1.02 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

13 Emerging applications: DRM: doesn't really mean digital copyright management

 L. Jean Camp

November 2002 **Proceedings of the 9th ACM conference on Computer and communications security CCS '02**

**Publisher:** ACM Press

Full text available:  [pdf\(258.91 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Copyright is a legal system embedded in a larger technological system. In order to examine the functions of copyright it is critical to examine the larger technological context of copyright: analog media and printed paper in particular. The copyright system includes both the explicit mechanisms implemented by law and the implicit mechanisms resulting from the technologically determinant features of paper and print. In order to prevent confusion between the legal, technical, and economic elements ...

**Keywords:** DRM, DeCSS, copyright, design for values, ethics, fair use, intellectual property, science and technology studies

14 Web and IP based design: Watermarking integer linear programming solutions

 Seapahn Megerian, Milenko Drinic, Miodrag Potkonjak

June 2002 **Proceedings of the 39th conference on Design automation DAC '02**

**Publisher:** ACM Press

Full text available: [pdf\(217.10 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Linear programming (LP) in its many forms has proven to be an indispensable tool for expressing and solving optimization problems in numerous domains. We propose the first set of generic watermarking techniques for integer-LP (ILP). The proof of authorship by watermarking is achieved by introducing additional constraints to limit the solution space and can be used as effective means of intellectual property protection (IPP) and authentication. We classify and analyze the types of constraints in ...

**Keywords:** digital watermarking, intellectual property protection

**15 Innovation, management & strategy: Towards a framework for understanding the effectiveness of digital content exploitation strategies**

 Ernst-Jan Goedvolk, Edward Faber, René W. Wagenaar  
March 2004 **Proceedings of the 6th international conference on Electronic commerce ICEC '04**

**Publisher:** ACM Press

Full text available: [pdf\(259.74 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Due to initiatives like Napster and Kazaa the business case for delivering protected digital content remains problematic. Still little is known about the effectiveness of content exploitation strategies. In this paper the literature on content protection, provisioning and usage is reviewed. Based on this review a causal framework is developed, which seeks to explain the effectiveness of content exploitation strategies. The paper ends with formulating a research agenda for studying content exploi ...

**Keywords:** content exploitation, content protection

**16 Keynote talk: On interoperability of DRM**

 Ton Kalker  
October 2006 **Proceedings of the ACM workshop on Digital rights management DRM '06**

**Publisher:** ACM Press

Full text available: [pdf\(134.60 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The use of Digital Rights Management (DRM) technologies for the enforcement of digital media usage models is currently subject of a heated debate. Content creators, owners and distributors argue that DRM technologies are needed to protect their Intellectual Property (IP) from unauthorized access. A counter argument from the Information Technology (IT) and Consumer Electronics (CE) industries states that DRM technologies are obstacles to innovation. Academic institutions add to the discussion by ...

**17 Software issues: Towards a software architecture for DRM**

 Sam Michiels, Kristof Verslype, Wouter Joosen, Bart De Decker  
November 2005 **Proceedings of the 5th ACM workshop on Digital rights management DRM '05**

**Publisher:** ACM Press

Full text available: [pdf\(296.34 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The domain of digital rights management (DRM) is currently lacking a generic architecture that supports interoperability and reuse of specific DRM technologies. This lack of architectural support is a serious drawback in light of the rapid evolution of a complex domain like DRM. It is highly unlikely that a single DRM technology or standard will be able to support the diversity of devices, users, platforms, and media, or the wide variety of system requirements concerning security, flexibility, a ...

**Keywords:** DRM, software architecture

**18 Watermarking graph partitioning solutions**

 Greg Wolfe, Jennifer L. Wong, Miodrag Potkonjak

June 2001 **Proceedings of the 38th conference on Design automation DAC '01**

Publisher: ACM Press

Full text available:  pdf(86.26 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Trends in the semiconductor industry towards extensive design and code reuse motivate a need for adequate Intellectual Property Protection (IPP) schemes. We offer a new general IPP scheme called constraint-based watermarking and analyze it in the context of the graph partitioning problem. Graph partitioning is a critical optimization problem that has many applications, particularly in the semiconductor design process. Our IPP technique for graph partitioning watern ...

**19 Digital document integrity**

 Graham Shaw

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia MULTIMEDIA '00**

Publisher: ACM Press

Full text available:  pdf(195.41 KB)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

The revolution in digital data processing has brought many benefits to the way we create, organise and manage information, whether in the form of images, documents, audio or video files. The conversion of such information into digital form provides us with capabilities such as online storage and retrieval, efficient search processes and worldwide data transmission. But digital data also brings with it a major problem, namely the ease with which such information can be copied and tampered with ...

**20 Behavioral synthesis techniques for intellectual property protection**

 Farinaz Koushanfar, Inki Hong, Miodrag Potkonjak

July 2005 **ACM Transactions on Design Automation of Electronic Systems (TODAES),**

Volume 10 Issue 3

Publisher: ACM Press

Full text available:  pdf(439.81 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce dynamic watermarking techniques for protecting the value of intellectual property of CAD and compilation tools and reusable design components. The essence of the new approach is the addition of a set of design and timing constraints which encodes the author's signature. The constraints are selected in such a way that they result in a minimal hardware overhead while embedding a unique signature that is difficult to remove and forge. Techniques are applicable in conjunction with an ar ...

**Keywords:** Intellectual property protection, behavioral synthesis, watermarking

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